

627.41 (73)

SECTION IV.—RIVERS AND FLOODS.

RIVERS AND FLOODS, APRIL, 1917.

By ALFRED J. HENRY, Professor in Charge.

[Dated: River and Flood Division, May 26, 1917.]

Numerous local floods of small intensity occurred in the rivers of the South Atlantic and East Gulf States, the details of which will be found in the tables which accompany this report. The general floods in the Tennessee, the lower Ohio, and the Mississippi below Cairo had their beginning in the previous month; the statistical record for April is given in the accompanying tables.

North Atlantic drainage.—Although the presence of a snow cover in northern New England is always more or less of a flood menace in the spring months, the snow cover of 1916–17 passed away without causing floods of consequence.

South Atlantic and East Gulf drainage.—Numerous local floods occurred in many of the rivers of the section. The lower Santee was in flood continuously from March 24 to April 23, but in general the remaining floods were of short duration and the crests were only a few feet above flood stage.

The Black Warrior River overflowed its banks below Tuscaloosa, Ala., and there was also an overflow of the lowlands along the Tombigbee River below Demopolis, Ala.

These were the only cases of serious overflow in the South that occurred during the month. At the end of the month all of the rivers were well within their banks.

Great Lakes drainage.—Local floods occurred in the rivers of Michigan, northern Indiana, and northern Ohio, as shown in Table 3.

Mississippi drainage.—The spring rise in the main stream north of Cairo did not pass much beyond freshet stages. The flood stage was passed at St. Paul, Minn., Hannibal and Louisiana, Mo., and Grafton, Ill., only. The flood at the last-named places was due to the occurrence of heavy rains in Iowa, Missouri, and Illinois at a time when the run-off from melting snow in Wisconsin and Minnesota had reached that stretch of the river. In the lower stretch of the river—New Madrid, Mo., to New Orleans, La.—the river was in flood for varying periods due to the flood waters contributed by eastern tributaries during the previous month. At New Orleans the river passed below flood stage, 18 feet, on the last day of the month, having been in flood only two days. It was still in flood, however, in the stretch—Arkansas City, Ark., and Donaldsonville, La. In general, the flood of 1917 in the lower Mississippi was of little intensity and of relatively short duration.

Eastern tributaries of the Mississippi.—The flood of the preceding month continued in the lower stretches of the Ohio until the 17th, a crest stage of 50.1 feet being reached at Cairo on the 4th. At the close of the month all important eastern tributaries of the Mississippi were falling.

Western tributaries of the Mississippi.—The breaking of an ice gorge in the Missouri below Bismarck, N. Dak., on the 9th released a considerable quantity of water that overflowed the lowlands between Springfield and Running Water, S. Dak., on the 13th, but without causing serious damage. This flood wave passed downstream, reaching St. Joseph, Mo., on the 18th at a stage only a few tenths of a foot above the flood level. Farther downstream the flood level was closely approached but not reached.

Floods did not occur in any of the remaining western tributaries of the Mississippi.

Colorado drainage.—Heavy rains over the headwaters of the Agua Fria and Verde Rivers of Arizona on the 16th and 17th caused a freshet in the lower Gila and also in the Colorado.

The run-off from melting snow at moderate elevations in Utah, Colorado, and Wyoming was not sufficient to cause floods in the lower Colorado.

The loss by flood during April, 1917, was approximately as follows:

District.	Tangible property, bridges, etc.	Crops.		Movable property live stock, etc.	Suspension of business.	Area overflowed.
		In hand.	Prospective.			
Mobile, Ala.				\$200	\$2,600	Acres.
Montgomery, Ala.	\$3,000	\$550	\$72,000	900	3,650	11,240
Columbia, S. C.	400	4,000	17,200	1,675	110	1,240
Macon, Ga.					5,000	
Cairo, Ill.	800		23,000	100	15,000	950
Total losses.....	4,200	4,550	117,200	2,875	26,360	13,430

Estimated saving by the warnings, \$167,700.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

TABLE 1.—Floods in North Atlantic drainage during April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
Penobscot.....	West Enfield, Me.	Feet. 14			Feet. 13.4	5
Connecticut.....	Wells River, Vt.	22			27.4	4
Do.....	White River Junction, Vt.	13	3	8	14.4	4
Do.....	Hartford, Conn.	16	24	24	16.1	24
White.....	White River Junction, Vt.	15	22	25	16.0	23
Hudson.....	Troy, N. Y.	15			14.6	3
Delaware East Branch.....	Fishs Eddy, N. Y.	10	2	2	10.8	2
Chenango.....	Sherburne, N. Y.	8			7.8	2

TABLE 2.—Floods in South Atlantic and East Gulf drainage during April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
		<i>Feet.</i>			<i>Feet.</i>	
Roanoke.....	Weldon, N. C.....	30	8	8	33.2	8
Staunton.....	Randolph, Va.....	21			20.3	7
Tar.....	Rocky Mount, N. C.....	9			8.1	8
Do.....	Tarboro, N. C.....	18	11	12	18.2	11
Do.....	Greenville, N. C.....	13	10	15	14.4	12, 13
Neuse.....	Neuse, N. C.....	14	7	8	14.1	7, 8
Do.....	Smithfield, N. C.....	13	7	12	16.4	10
Cape Fear.....	Elizabethtown, N. C.....	22	8	12	25.6	11
Do.....	Fayetteville, N. C.....	35			32.5	10
Pee Dee.....	Cheraw, S. C.....	27			24.3	10
Santee.....	Rimini, S. C.....	12	1	20	16.9	1
Do.....	Ferguson, S. C.....	12	1	23	14.0	12
Wateree.....	Camden, S. C.....	24	6	7	26.3	6
Broad (of South Carolina).....	Blair, S. C.....	15	6	6	15.0	6
Broad (of Georgia).....	Carlton, Ga.....	11			10.6	6
Saluda.....	Pelzer, S. C.....	7	5	5	7.0	5
Do.....	Chappells, S. C.....	14	6	7	15.0	7
Oconee.....	Millidgeville, Ga.....	22	6	6	25.4	6
Do.....	Dublin, Ga.....	22			18.7	9
Ocmulgee.....	Abbeville, Ga.....	11	1	6	14.4	2
Do.....	Macon, Ga.....	18	10	15	14.0	11
Do.....	Lumber City, Ga.....	15	6	6	19.5	6
Chattahoochee.....	Norcross, Ga.....	16			11.6	6
Do.....	Alaga, Ala.....	30			28.3	6
Alabama.....	Montgomery, Ala.....	35	6	9	37.9	7
Do.....	Selma, Ala.....	35	1	12	42.3	1
Cocosa.....	Lock No. 4, Ala.....	17	1	9	19.4	5
Etowah.....	Canton, Ga.....	11			10.7	5
Cahaba.....	Centerville, Ala.....	25	5	5	25.2	5
Tombigbee.....	Aberdeen, Miss.....	33			30.0	8
Black Warrior.....	Tuscaloosa, Ala.....	46	5	9	56.3	7
Pearl.....	Edinburg, Miss.....	21			20.0	8
Do.....	Jackson, Miss.....	20	3	19	28.5	10, 11

TABLE 3.—Floods in Great Lakes drainage during April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
		<i>Feet.</i>			<i>Feet.</i>	
Maumee.....	Fort Wayne, Ind.....	15	2	8	18.6	6
Sandusky.....	Upper Sandusky, Ohio.....	13			12.0	7
Saginaw.....	Saginaw, Mich.....	19			18.1	8, 9
Cass.....	Vassar, Mich.....	14			13.7	6, 7
Grand.....	Grand Lodge, Mich.....	6	7	9	7.0	7
Do.....	East Lansing, Mich.....	8	7	8	9.4	7

TABLE 4.—Floods in Ohio River and tributaries during April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
		<i>Feet.</i>			<i>Feet.</i>	
Ohio.....	Henderson, Ky.....	33	1	7	36.3	1
Do.....	Evansville, Ind.....	35	1	7	38.1	1
Do.....	Mount Vernon, Ind.....	36	1	8	38.5	1
Do.....	Shawneetown, Ill.....	35	1	16	41.0	1
Do.....	Paducah, Ky.....	43	1	11	45.7	2
Do.....	Calo, Ill.....	45	1	17	50.1	4, 5
Tuscarawas.....	Norris Point, Ohio.....	8	7	8	8.6	7
Do.....	Coshocton, Ohio.....	8	7	8	8.6	7
Walhonding.....	Walhonding, Ohio.....	8	6	7	9.0	7
Hocking.....	Athens, Ohio.....	17			16.0	7
Scioto.....	Circleville, Ohio.....	7	7	8	10.0	7
Olentangy.....	Delaware, Ohio.....	9			8.4	6
White.....	Decker, Ind.....	18	9	12	18.3	10, 11
Green.....	Lock No. 2, Ky.....	34	1	16	40.4	10, 11
Do.....	Lock No. 4, Ky.....	33	3	10	39.1	8
Do.....	Lock No. 6, Ky.....	30			29.6	4
Wabash.....	Mount Carmel, Ill.....	15	6	15	17.8	11, 12
Do.....	Lafayette, Ind.....	11	4	9	15.6	7
Tennessee.....	Florence, Ala.....	18	1	3	19.9	1
Do.....	Riverton, Ala.....	32	1	10	40.7	1, 2
Do.....	Johnsonville, Tenn.....	31	1	12	36.1	6
Do.....	Guntersville, Ala.....	31	1	2	33.4	1
Do.....	Decatur, Ala.....	21			20.1	1
French Broad.....	Asheville, N. C.....	4			3.8	6

TABLE 5.—Floods in the Mississippi River and tributaries during April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
		<i>Feet.</i>			<i>Feet.</i>	
Mississippi.....	St. Paul, Minn.....	14	5	16	16.2	8
Do.....	La Crosse, Wis.....	12			11.8	12, 14
Do.....	Keokuk, Iowa.....	14			12.8	1
Do.....	Quincy, Ill.....	14			13.9	28
Do.....	Hannibal, Mo.....	13	22	(*)	15.0	28
Do.....	Louisiana, Mo.....	12	23	(*)	13.7	29
Do.....	Grafton, Ill.....	18			16.9	30
Do.....	New Madrid, Mo.....	34	1	18	39.3	4-7
Do.....	Memphis, Tenn.....	35	1	21	40.1	9, 10
Do.....	Helena, Ark.....	42	1	26	49.9	13
Do.....	Arkansas City, Ark.....	42	1	(*)	52.1	17, 18
Do.....	Greenville, Miss.....	42	5	29	46.7	19-21
Do.....	Vicksburg, Miss.....	45	3	(*)	49.3	21-24
Do.....	Baton Rouge, La.....	35	14	(*)	37.9	30
Do.....	Donaldsonville, La.....	28	16	(*)	29.6	20, 30
Do.....	New Orleans, La.....	18	29	30	18.1	20, 30
<i>Eastern tributaries.</i>						
Wisconsin.....	Knowlton, Wis.....	12			11.0	3
Illinois.....	Peru, Ill.....	14			13.9	8
Do.....	Henry, Ill.....	7	1	25	8.1	11
Do.....	Peoria, Ill.....	16			15.0	1, 2, 12
Do.....	Beardstown, Ill.....	12	1	2	13.0	1-2
Do.....	Pearl, Ill.....	12			11.1	4
Yazoo.....	Swan Lake, Miss.....	25	1	(*)	29.6	12-15
Do.....	Greenwood, Miss.....	36			35.4	17-20
Do.....	Yazoo City, Miss.....	25	5	(*)	29.6	20
<i>Western tributaries.</i>						
Minnesota.....	Fort Ripley, Minn.....	10	5	7	11.4	6
St. Croix.....	Stillwater, Minn.....	11	4	24	14.6	9
Do.....	do.....	11	29	(*)	11.4	30
Grand.....	Chillicothe, Mo.....	18	30	(*)	18.7	30
Meramec.....	Pacific, Mo.....	11			10.3	30
Do.....	Valley Park, Mo.....	14	30	30	14.6	30
Bourbeuse.....	Union, Mo.....	10	30	(*)	11.0	30
St. Francis (Arkansas Basin).....	Marked Tree, Ark.....	17	16	(*)	17.3	19-24
Cottonwood.....	Emporia, Kans.....	19			18.1	19
Pettit Jean.....	Danville, Ark.....	20	2	3	20.9	2
White.....	Calico Rock, Ark.....	18	2	2	22.8	2
Do.....	Batesville, Ark.....	23	2	3	28.2	3
Do.....	Newport, Ark.....	26			24.9	6
Do.....	Georgetown, Ark.....	22	11	14	22.2	12
Do.....	Clarendon, Ark.....	30			27.6	20
Black.....	Black Rock, Ark.....	14	2	24	24.6	3
Cache (Red River Basin).....	Jelks, Ark.....	9	16	27	9.5	20-22
Sulphur.....	Ringo Crossing, Tex.....	20	30	(*)	22.0	30
Atchafalaya (Atchafalaya).....	Simsesport, La.....	41	25	(*)	41.7	30
Do.....	Melville, La.....	37	13	(*)	39.6	30

* Continued into May, 1917.

TABLE 6.—Floods in Missouri River and tributaries during April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
		<i>Feet.</i>			<i>Feet.</i>	
Missouri.....	Williston, N. Dak.....	24			23.3	5
Do.....	Bismarck, N. Dak.....	14	6	9	22.2	8
Do.....	Blair, Nebr.....	15	14	20	16.9	15
Do.....	Omaha, Nebr.....	19			18.7	18
Do.....	St. Joseph, Mo.....	12	18	20	12.3	19
Do.....	Kansas City, Mo.....	22			21.6	20, 21
Do.....	Waverly, Mo.....	23			21.6	21
James.....	Huron, S. Dak.....	9	1	21	14.4	6, 7

TABLE 7.—Floods in West Gulf and Pacific drainage, April, 1917.

River.	Station.	Flood stage.	Above flood stages.		Crest.	
			From—	To—	Stage.	Date.
		<i>Feet.</i>			<i>Feet.</i>	
Trinity.....	Dallas, Tex.....	25	29	(*)	27.5	29
Rio Grande.....	San Marcial, N. Mex.....	14			18.8	29
Colorado (Pacific drainage).....	Yuma, Ariz.....	25	20	20	25.1	30
Gunnison (North Fork).....	Paonia, Colo.....	8			7.2	26, 27
Salt.....	Phoenix, Ariz.....	5	18	19	7.2	18
Willamette.....	Eugene, Oreg.....	10	8	8	10.5	8
Do.....	Oregon City, Oreg.....	10			9.3	10

* Continued into May, 1917.